



## Municipal and School



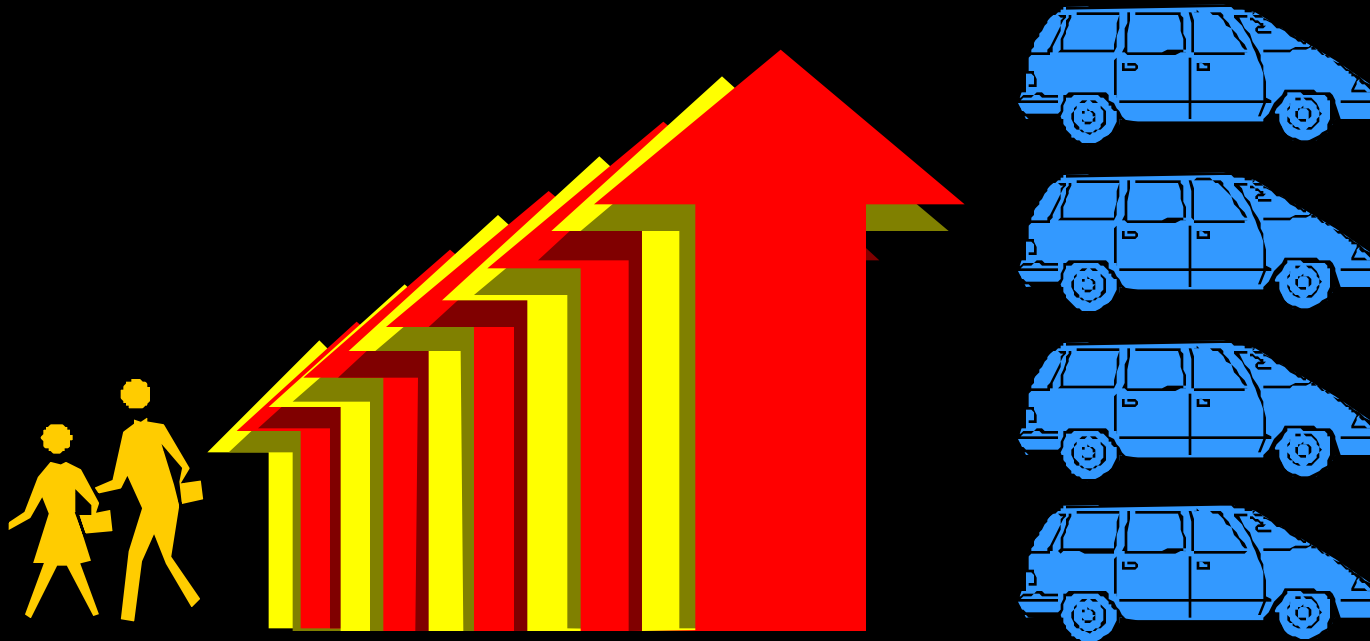
## Transportation Assistance



# Heartbeat for North Carolina Schools

## Higher Parent / Student Ratio

(Parent Vehicles per Student Population)





# Heartbeat for North Carolina Schools

## Higher Parent / Student Ratio

(Reasons Given by Parents)

Driving my child assures my child's safety

School buses are not safe

The lack of discipline on the bus may be traumatizing to my child

Unsupervised activities occur on buses

Older students teach younger children unwanted actions

It's not COOL to ride a bus

Socially, driving my child is the only option

The ride provides "quality time" with my child

Provides opportunities to have discussions w/ teachers & other parents

# MSTA School Traffic Calculator

School Name: Your School Name  
Is this a RITE Campus? Yes

Version: 121074

MSTA School Queue Input					Calculations				
Type School	Student Population	Number of Buses	Staff Members	Student Drivers	PM Total Vehicles	PM Peak Vehicle	Minimum Queue Length	Total AM Trips	Total PM Trips
Elementary	500	11	94		131	50	1323	590	273
Middle	1000	22	170		142	74	1673	710	700
High	1800	21	130	372	58	31	752	752	505
		21	130	372			3758	2256	1034

[www.ncdot.org/doh/preconstruct/traffic/congestion/CM/msta/docs/School\\_Calculator\\_2005.xls](http://www.ncdot.org/doh/preconstruct/traffic/congestion/CM/msta/docs/School_Calculator_2005.xls)

Middle School Data											
AM Trips Generated					PM Trips Generated						
Direction	Parents	Buses	Staff	Trips	Parents	Buses	Staff	Trips			
IN	345	22	132	470	142			142			
OUT	345			376	142	22		164			
AM Middle Trips				846	PM Middle Trips				306		
									1152		
High School Data											
AM Trips Generated					PM Trips Generated						
Direction	Parents	Buses	Staff	Student Drivers	Trips	Parents	Buses	Staff	Student Drivers	Trips	
IN	120	21	120	372	633	58				53	
OUT	120				120	58	21		372	429	
AM High Trips					752	PM High Trips					481
Total All AM Trips					1590	Total All PM Trips					929
					758						755
					2258						1034
											3658

**NCDOT.ORG**

**Search for MSTA**

# MSTA School Traffic Calculator

## Purpose

- Provide a conservative engineering analysis tool for estimating traffic volumes and storage lengths at public and private schools across North Carolina.
- Help determine safe and effective low cost traffic solutions around schools by applying basic traffic engineering principals.



# Off-campus





# On-campus

Loading Operations



Pedestrian Activities



Parking Lot Design



# Beyond The Calculator

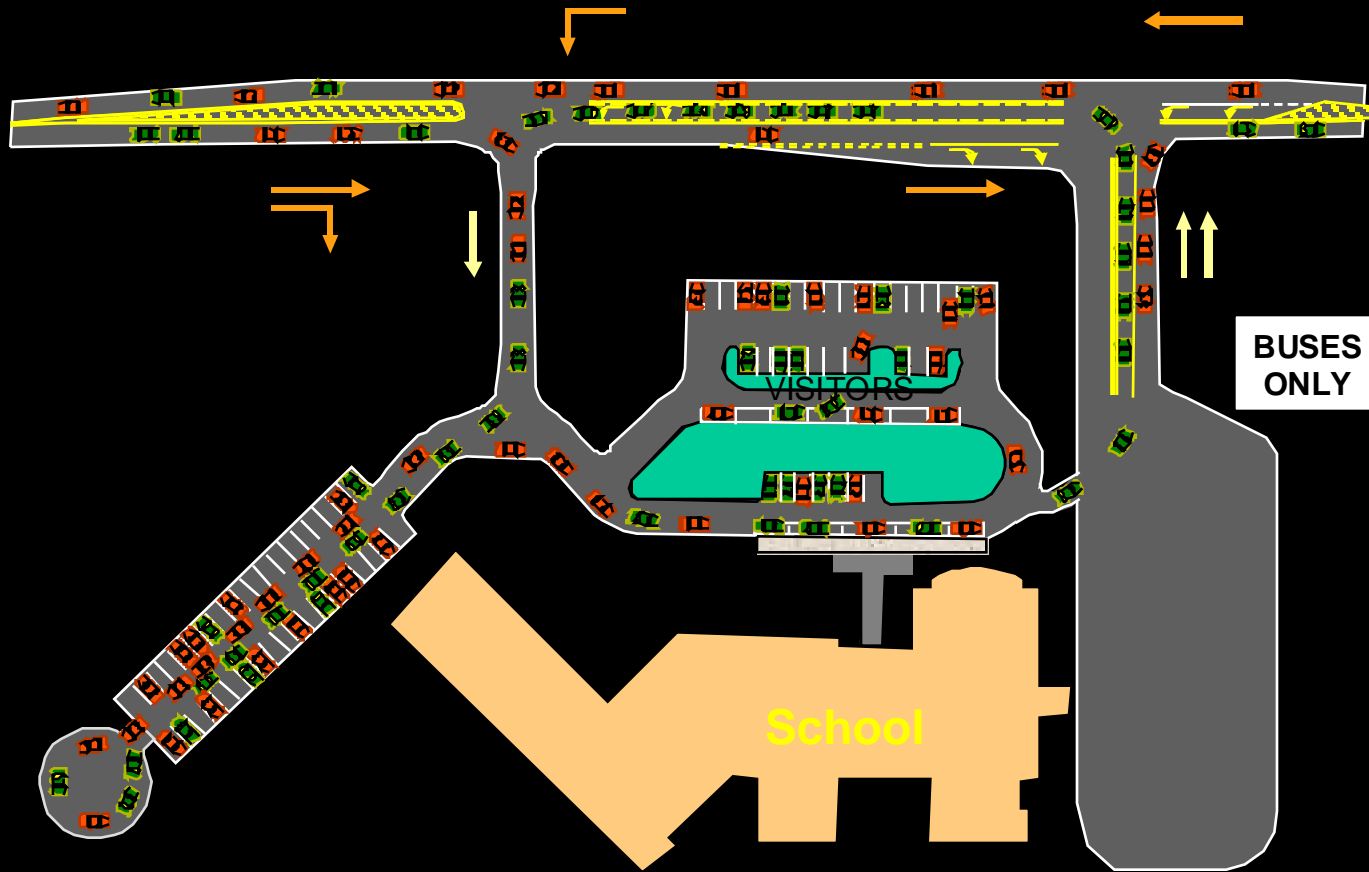


**S**eparate pedestrians and vehicle types  
**O**rganize student loading process  
**A**ssign short term "Visitor" parking  
**R**educe drivers options and conflicts

# Beyond The Calculator

One-way Traffic Can Help A Campus To..

- Separate vehicle types,
- Organize student loading
- Assign visitor parking
- Reduce drivers options and conflicts



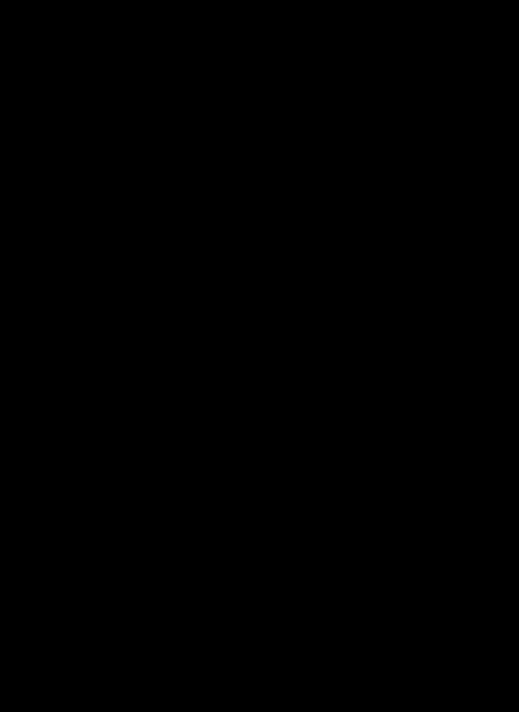
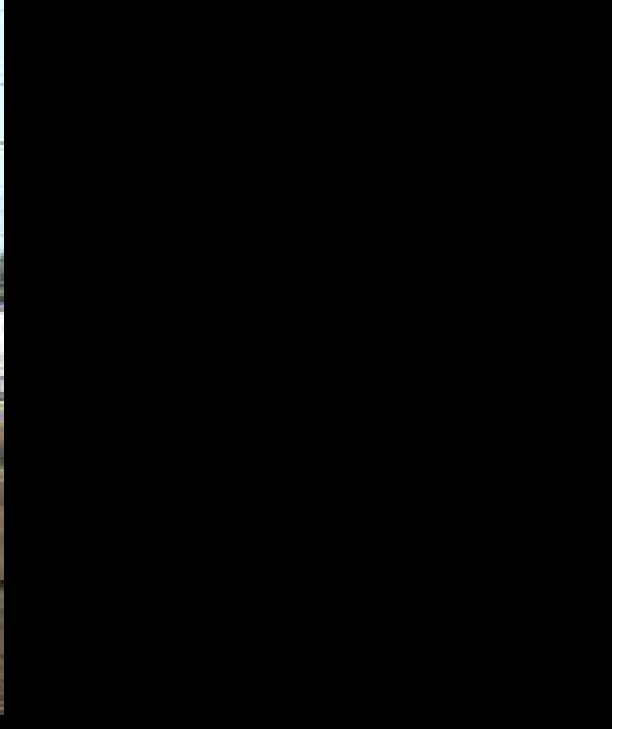
# Going Beyond The Calculator

## to provide Safe Roads to Safe Schools





















School Name  
 Littleton Public School ☒ Yes

Version: 2013M

### MSTA School Queue Input

Type School	Student Population	Number of Buses	Staff Members	Student Drivers	AM Total Vehicles	PM Peak Vehicles	Minimum Queue Length	Total AM Trips	Total PM Trips
Elementary									
Middle									
High	100	2	20	372	30	31	762	752	506

### Elementary School

AM Trips Generated				
Direction	Parents	Buses	Staff	Trips
IN				
OUT				
AM Elementary Trips				

### Middle School

AM Trips Generated				
Direction	Parents	Buses	Staff	Trips
IN				
OUT				
AM Middle Trips				

### High School Data

AM Trips Generated						PM Trips Generated				
Direction	Parents	Buses	Staff	Student Drivers	Trips	Parents	Buses	Staff	Student Drivers	Trips
IN	10	21	20	372	600	30				56
OUT	10				10	30	31		372	433
AM High Trips						PM High Trips				
Total						Total				
All AM						All PM				
Trips						Trips				
Total						Total				
752						506				

### Calculations

PM Total Vehicles	PM Peak Vehicles	Minimum Queue Length	Total AM Trips	Total PM Trips
56	31	762	752	506
184	10	2503		

AM	PM	AM	PM
Car	Car	Car	Car
Student	Student	Student	Student
38.5%	40%	29.1%	40.1%
34.5%	40%	20.7%	51.0%
6.0%	40%	24.2%	55.7%

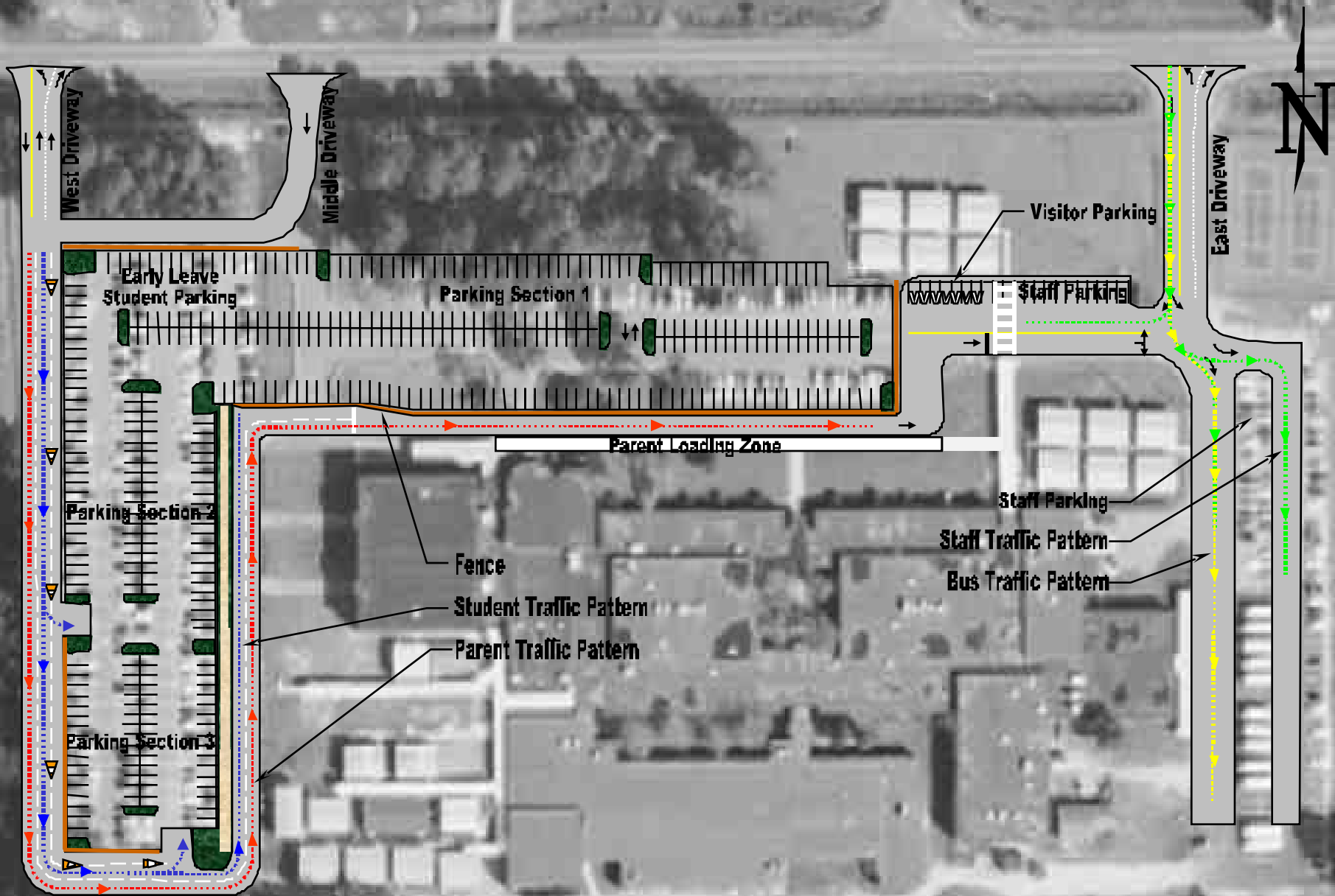
P-11.25% 262.00 2200 37.25%  
 P-11.25% School of data is based on no buses and uses the same percentages for all school types (Elementary, middle, & high)

### NOTES

- Minimum Queue Length does NOT include an alternative traffic pattern for high traffic demand days.
- Peak traffic volumes at various normally occur within a 30-minute time period (PM of 0.5).

**AM = 287 Parent Traffic**

**PM = 184 Parent Traffic**



Worthington Road (SR 1711)

